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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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ATTN: ROBIN NAVA
555 INDUSTRIAL BOULEVARD, MD-1
SUGAR LAND, TX 77478

EXAMINER

CHANG, EDITH M

ART UNIT	PAPER NUMBER
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2634

DATE MAILED: 07/09/2004

14

Please find below and/or attached an Office communication concerning this application or proceeding.

Advisory Action

Application No.

09/590,657

Applicant(s)

BOMBAY ET AL.

Examiner

Edith M Chang

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--The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

THE REPLY FILED 09 June 2004 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE. Therefore, further action by the applicant is required to avoid abandonment of this application. A proper reply to a final rejection under 37 CFR 1.113 may only be either: (1) a timely filed amendment which places the application in condition for allowance; (2) a timely filed Notice of Appeal (with appeal fee); or (3) a timely filed Request for Continued Examination (RCE) in compliance with 37 CFR 1.114.

PERIOD FOR REPLY [check either a) or b)]

- a) ☒ The period for reply expires 5 months from the mailing date of the final rejection.
b) ☐ The period for reply expires on: (1) the mailing date of this Advisory Action, or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection.
ONLY CHECK THIS BOX WHEN THE FIRST REPLY WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

1. ☐ A Notice of Appeal was filed on _____. Appellant's Brief must be filed within the period set forth in 37 CFR 1.192(a), or any extension thereof (37 CFR 1.191(d)), to avoid dismissal of the appeal.
2. ☐ The proposed amendment(s) will not be entered because:
(a) ☐ they raise new issues that would require further consideration and/or search (see NOTE below);
(b) ☐ they raise the issue of new matter (see Note below);
(c) ☐ they are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or
(d) ☐ they present additional claims without canceling a corresponding number of finally rejected claims.

NOTE: _____

3. ☐ Applicant's reply has overcome the following rejection(s): _____.
4. ☐ Newly proposed or amended claim(s) _____ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).
5. ☒ The a) ☐ affidavit, b) ☐ exhibit, or c) ☒ request for reconsideration has been considered but does NOT place the application in condition for allowance because: See note.
6. ☐ The affidavit or exhibit will NOT be considered because it is not directed SOLELY to issues which were newly raised by the Examiner in the final rejection.
7. ☒ For purposes of Appeal, the proposed amendment(s) a) ☐ will not be entered or b) ☒ will be entered and an explanation of how the new or amended claims would be rejected is provided below or appended.

The status of the claim(s) is (or will be) as follows:

Claim(s) allowed: 2,4,5,7-11,15 and 19-20.Claim(s) objected to: 6.Claim(s) rejected: 12-14,16-18.

Claim(s) withdrawn from consideration: _____.

8. ☐ The drawing correction filed on _____ is a) ☐ approved or b) ☐ disapproved by the Examiner.
9. ☐ Note the attached Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____.
10. ☐ Other: _____

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Response to Arguments

1. Applicant's arguments filed June 09 2004 have been fully considered but they are not persuasive.

Argument: Applicants note that in the Office Action dated January 09 2004 the Examiner made rejections based newly cited art, namely U.S Pat. No. 6,647,067 issued to Helm et al. on November 11, 2003. This patent issued after the response to the first Office Action was submitted on October 23, 2003; it was not cited in the first Office Action and was not available for consideration in the response to that first Office Action which was submitted prior to the grant date of the patent.

Response: The patent (US 6,647,067) was cited in the second Office Action due to the amendments of the claim 2 in the amendment "A" filed on October 23 2003 after the first Office Action dated July 23 2003. The claim 2 is rejected under *U.S.C. 103(a)* as being unpatentable over Lyon et al. (US 5838727) in view of Goodman et al. (US 5473321) as applied to claim 1, and further in view of Hjelm et al. (US patent 6647067). The rejection is necessitated by Applicant's amendment.

Argument: Regarding independent claims 12 and 16, Hjelm et al. relates to method requiring less processing power. Lyon et al. teaches a system in which waveforms are transmitted simultaneously over two channels. As such, one skilled in the art would not be motivated to attempt to substitute the cross-talk cancellation method of Hjelm into the system.

Response: Hjelm et al.'s method seeks to overcome the computationally time consuming operations (N lines, $N*(N-1)$ filter operations or complex multiplications for each carrier) for very high speed systems (large number of lines). Lyon et al.'s system has two

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channels/lines ($N=2$). As such, one skilled in the art would be motivated to attempt to substitute the cross-talk cancellation method of Hjelm (FIG.2 for N lines) into the system to have the benefits of efficient operations and reducing crosstalk interference as the title of Hjelm's invention indicating (column 2 lines 41-45).

The rejections are upheld for claims 12-14, and 16-18.

Claim Objections

2. Claim 6 is objected to because of the following informalities:

Claim 6, lines 1-2 the term "the far-end cross-talk parameter update logic" lacks antecedence.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 12-14, & 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lyon et al. (US 5838727) in view of Goodman et al. (US 5473321) and Hjelm et al. (US Patent 6647067).

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Regarding **claims 12 & 16**, Lyon et al. discloses a method comprising: inputting a first sample received on a first propagation mode; imputing a second sample received on a second propagation mode (column 12 line 65-column 13 line 10), but does not explicitly specify the cross-talk component and its method. However Goodman et al. teaches the cross-talk component (column 2 lines 25-35, 505a FIG.5) and Hjelm et al. teaches the cancellation method of using cross-talk component (Abstract, column 2 line 56-column 3 line 5, wherein subtracting the cross-talk component determined/convolved from one line/channel/propagation mode from another line/channel/propagation mode). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to have the method taught by Hjelm et al. implemented by the cross-talk component taught by Goodman et al. in each channel/propagation mode of Lyon et al.'s receiver to provide an efficient crosstalk cancellation processing (column 2 lines 45-55), less complicated and more reliable arrangement to assure accurately reception of data signals from sonde (column 12 lines 35-55, column 5 lines 5-10 '321).

Regarding **claims 13 & 18**, Lyon et al. does not teach the slice residual, however Goodman et al. teaches determining a slice residual and adjusting a function used to determine the cross-talk component (512-510 FIG.5). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to have the determining slice residual and updating a parameter taught by Goodman in Lyon et al.'s receiver to assure accurately reception of data signals from sonde (column 12 lines 35-55, column 5 lines 5-10).

Regarding **claims 14 & 17**, Lyon et al. does not explicitly specify the multiplying a carrier specific coefficient in the cross-talk component determination, however Goodman et al. teaches the cross-talk component is determined by multiplying a carrier specific coefficient with

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a sample received (507-510 FIG.5, column 6 lines 40-52). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to have the teaching of the cross-talk component determined by multiplying a carrier specific coefficient with a sample received taught by Goodman et al. in Loyn et al.'s receiver to assure accurately reception of data signals from sonde (column 12 lines 35-55, column 5 lines 5-10).

Allowable Subject Matter

5. Claims 2, 4-5, 7-11, 15, and 19-20 are allowed.
6. Claim 6 is objected to informality, but would be allowable if rewritten to overcome the objections.

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edith M Chang whose telephone number is 703-305-3416. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on 703-305-4714. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Edith Chang
June 28, 2004


CHIEH M. FAN
PRIMARY EXAMINER